

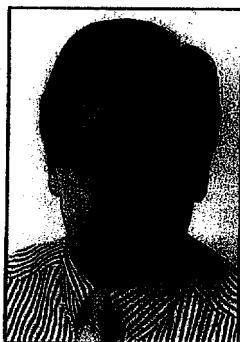
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ASSOCIATION OF MUNICIPAL
UTILITIES

Results of Elections to Establish City Communications Utilities in Iowa			
City/Year	Vote	City/Year	Vote
Cedar Falls '94	70%	Akron '94	91%
Hull '94	97%	Rock Rapids '94	83%
Sibley '94	91%	Bancroft '94	85%
Hawarden '94	96%	Harlan '95	71%
Grundy Center '96	93%	Coon Rapids '96	87%
Manning '96	86%	New London '96	77%
Laurens '97	99%	Spencer '97	91%
Alta '97	88%	Muscatine '97	94%
Lake View 9/23/97	84%	Algona 11/4/97	74%
Danbury 11/4/97	90%	Denison 11/4/97	54%
Hartley 11/4/97	86%	Independence 11/4/97	57%
Indianola 11/4/97	58%	Mount Pleasant 11/4/97	64%
Orange City 11/4/97	84%	Primghar 11/4/97	90%
Sac City 11/4/97	77%	Sanborn 11/4/97	92%
Tipton 11/4/97	86%	Vinton 11/4/97	48%
Westwood 11/4/97	91%	Greenfield 12/23/97	42%
Carroll 2/17/98	83%	Emmetsburg 5/5/98	63%
Storm Lake 5/5/98	67%	Webster City 5/12/98	84%
Mapleton 6/23/98	72%	Paullina 8/11/98	86%
Woodbine 12/8/98	80%	Traer 12/15/98	81%
New Hampton 5/4/99	84%	Pocahontas 5/11/99	95%
Milford 8/10/99	94%	Osage 11/2/99	85%

Infotricity: Why Muni Electrics Like Cable TV

Glasgow, Ky. power chief takes *Fortnightly* to task.

By Billy Ray



"THE GREAT obstacle of man is the illusion of knowledge," says Daniel Boorstin, distinguished American historian and Librarian of Congress emeritus.

It is *what we think we know* that keeps us from making progress toward discovering new certainties. The electric utilities of today have a lot in common with the sailors who accompanied

Christopher Columbus. They stand on the shores of a new continent gazing into the unexplored wilderness of competition, paralyzed by fear due to their "illusion of knowledge."

When Columbus sailed off on the morning of Aug. 3, 1492, he was discarding the conclusions of the orthodox Christian authorities. After four trips to the New World he died believing he had been exploring the East Coast of Asia. It turns out his main discovery was the discovery of ignorance—European man's ignorance of the world. The Glasgow Electric Plant Board and several other municipal utilities have embarked on similar voyages of discovery. Old dogma is difficult to overcome, but if all electric utilities pay attention to the main discoveries of these voyages, they can cast off the ignorant ramblings of modern economic and business authorities and discover a new product, *infotricity*.

Infotricity is the term we have given to the product we have been offering at the EPB. It is a combination of electric power, cable television, telephony and high speed LAN and Internet services. It is a mixture of electrons and bits. It is a complicated and unexpected set of interrelations. It has unimagined consequences and possibilities. *It is another New World.*

The modern day "authorities" have written and said much about the New World we have discovered in Glasgow. The Cable Telecommunications Association (CATA) has even created a site on the Internet dedicated to spreading its particularly slanted misinformation about us. Even magazines and periodicals that our industry trusts implicitly like *Public Utilities Fortnightly* have published articles spreading the illusion (See "Munis Find Cable TV a Costly Business," by Len Grzanka, Sept. 15, 1998, *Public Utilities Fortnightly*, p. 34).

**We have finally
crossed over into
positive net income for
the fiscal year just ended.
We can hardly imagine
what's next.**

When the EPB decided to construct a broadband network and offer entertainment and telecommunications services, we did not plan on immediate revenue gains from these new products. Instead, we planned on rediscovering our initial mission of providing and simplifying technology for our customers. We looked out upon a landscape where the possibilities of services from new telecommunications technologies and the realities of the actual services being offered were not even in the same field of view. Similarly, we saw that the rates being charged when these services were offered were outrageously high. We set out upon a voyage to discover ways to rectify these images and we have learned much.

One of our early discoveries was that our existing lineman, accountants, engineers and other employees were plenty smart enough to design, construct, operate and maintain a broadband network capable of delivering a flow of bits every bit as robust as the network they already were operating to supply a flow of electrons. I know several engineers will correct me and say that we actually provide a flow of "holes" where electrons were, but I hope they will allow me this more convenient description.

In operation, we find that the information flowing back to our operations center relative to the performance of the broadband network actually helps us find trouble and potential trouble on our power network. We have been able to use this information and the newfound communications capabilities with our substations and other devices on our network to dramatically increase the reliability of our electric power product.

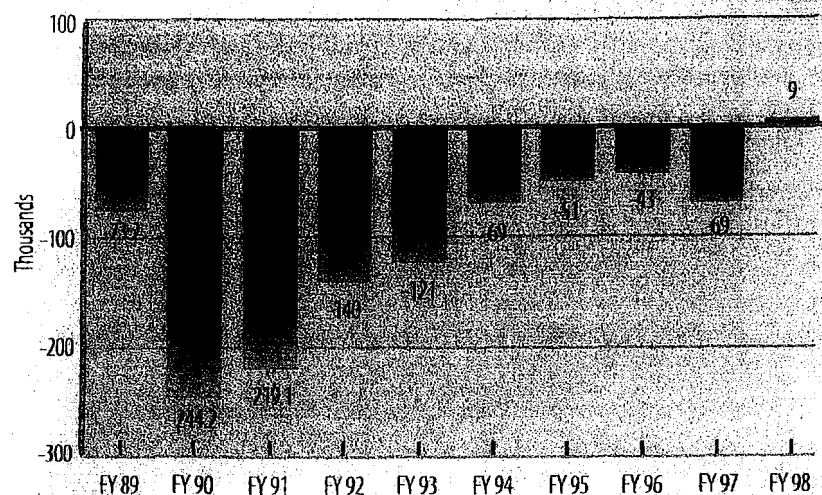
When we started offering cable television service on our new broadband network, we really started making discoveries. We found that our customers gave us a new level of respect for our efforts to bring them something they could get from no one else; truly competitive, cost-based, rates for cable service and an opportunity to choose from multiple providers. We discovered that people really like pro-

gramming featuring local events like government meetings, school activities, local sporting events, local talk shows. They even love to see District Small Claims Court on television! We would have never guessed it before our voyage, but we discovered that becoming a conduit for bringing these local events into the homes of our customers makes us more welcome in the homes of our customers and cherished in their hearts. Finally, we found that there is no more reliable method of getting information about our services into the minds of our customers than utilizing the "commercial insertion" opportunities afforded to distributors of cable programming by nearly all of the major services like CNN, Discovery Channel, TNT and others.

Our discoveries in the provision of high speed computer networking may be the most exciting of all. We provide a flow of bits for everyone. If you are one of our electric customers and you are about to buy your very first home computer, we will provide expert advice to you on which machine to buy. When it arrives, we set it up and teach our customers how to access information on the Internet through our network.

On the other end of the spectrum, if you are a business or industry that needs a high bandwidth bit pipe to another location in the community or to other locations via the Internet, we can provide you with a dedicated fiber circuit to meet your needs. Once our bit

Table 1: CATV Income—Glasgow Electric Utility
Into the black in 1998.



Perspective

service is established to one of our customers, we have a constant interactive relationship with them. We can e-mail them to inform them of our power system status. We can explain the reasons for outages and give them advice on helping us prevent them. They can e-mail us to report that the street light in front of their house is out or to request additional information on their power or cable television charges. We can establish our homepage as their homepage, again reinforcing our position as the "well of knowledge" for our community. The

same customers that find it convenient to have an electric utility that can furnish them anything from a flow of electrons for a 60 amp single-phase connection to a dedicated substation for a 15-megawatt connection, find it similarly convenient to purchase their flow of bits in the same manner and from the same entity.

No dissertation on the virtues of the Glasgow project and others similar to it would be complete without exploring financial results. Even King Ferdinand and Queen Isabella expected Columbus to return with some

spoils to prove that he had indeed found the New World.

We never envisioned our cable television service as a stand-alone money maker. Rather, we saw it as an important structure in our vision of the infotricity utility. (See Table 1.) We are quite pleased that we have finally crossed over into positive net income for the fiscal year just ended. The people of Glasgow were quite willing to make a long-term investment in broadband infrastructure that they believed would bring them exponentially more benefits than the costs of the early losses. Indeed, they were correct in their vision. The amount of money retained in the local economy since the competition created by our project lowered the cost of cable television service. (See Table 2.)

Shopping centers don't apply the rules of cost-benefit analysis before they make a decision to build a parking lot beside their building. Neither do they measure the profit and loss of those parking lots. If they did, none of us would find a place to park. We, like they, should evaluate the impact of these new services in the light of the impact on the whole of the operation. Electric utilities also must see the value of becoming infotricity utilities before they decide to embark on

Table 2: Cost Savings—Glasgow Local Economy
Keeping earnings local cuts CATV rates.

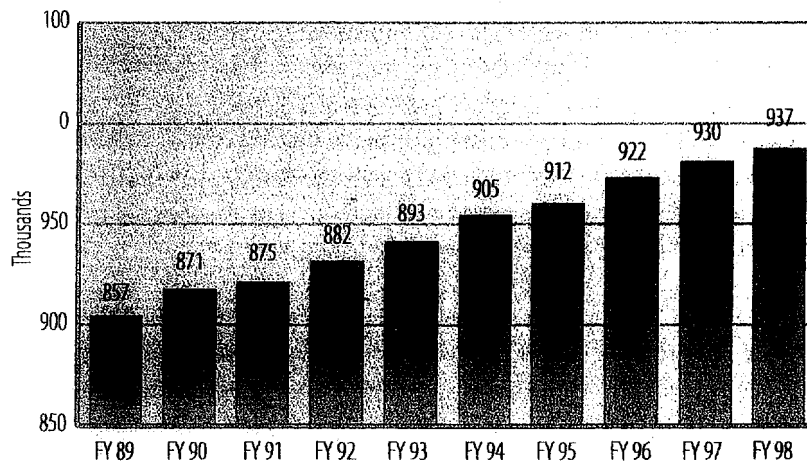
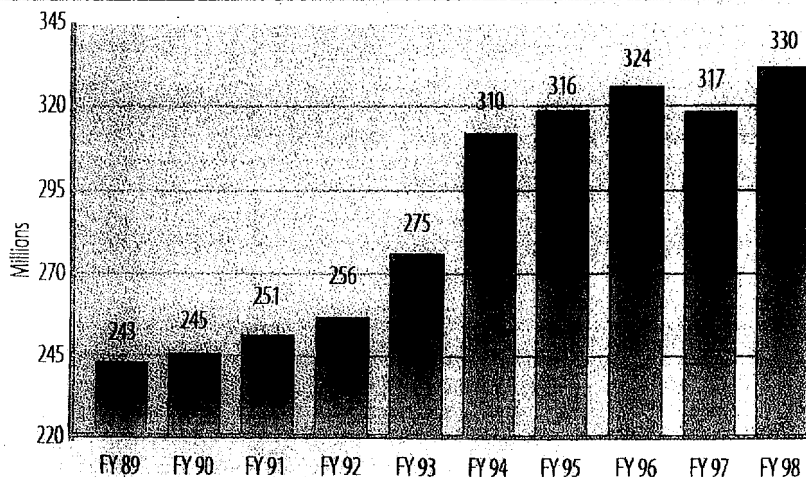


Table 3: KWH Sales—Glasgow Electric Utility
Cable business grows power revenues.



a voyage like ours. However, our transition to an infotricity utility has been good for our energy sales business (See Table 3).

The New World we discovered is a world with dew still on it, so rich with possibilities that we can hardly imagine what will happen next. We can see infotricity making the deregulation of our industry a reality. When we are all infotricity utilities, it will be easy for a generation utility to post prices on the Web. So posted, it will be simple for our customers to shop for the best deal, make the deal, have their usage monitored by the vending utility and get billed for it via e-mail. With the bit pipe extended to the home, it will be a natural next step to extend the pipe throughout the home; it will go everywhere that electron pipes go. Appliances will all report their usage of energy to the utility on the ubiquitous network. We will then create power rates for discreet devices. We can run "specials" on clothes drying energy after 10 p.m. or special dish-washing energy sales on the weekend. The days of one electric meter for the whole house will be gone.

These are but a few of the many things we have discovered in the New World of infotricity.

How does an electric utility decide if it is to sail off to the land of infotricity? The answer lies in each particular utility's philosophy on risk, altruism, and patience. If the Glasgow project is comparable to the voyage of Columbus, then the decisions of other utilities are similar to the European countries decisions on colonization. In those days the English settlements called themselves plantations and Francis Bacon's essay "Of Plantations" (1625) is illustrative of the decisions each electric utility must make.

"Planting of countries," he wrote, "is like planting of woods. For you must make account to lose almost twenty years' profit, and expect your recompense in the end. For the principal thing that hath been the destruction of most

plantations hath been the base and hasty drawing of profit in the first years. It is true, speedy profit is not to be neglected, as far as it may stand with the good of the plantation, but no farther."

A plantation then, was a place of risk and of calculation. It is the same today in the electric utility business. **P**

William J. "Billy" Ray is superintendent of the Glasgow (Ky.) Electric Plant Board. For more than 10 years he has been a vocal proponent of turning electric utilities into "technology utilities."

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Municipal Ownership of Cable And Telecommunications Systems

~~Cable Systems~~ and Controversies

24 total

AMERICAN PUBLIC POWER ASSOCIATION
Charlotte, North Carolina
October 25, 1999

Presented by:
Nicholas P. Miller
Miller & Van Eaton, P.L.L.C.

1. **Overview: Why Communities Consider Municipal Ownership.**

- 1.1 Inadequacy of existing services available to subscribers.
- 1.2 Economic development.
- 1.3 Cost savings.
- 1.4 Control over the future. Municipal ownership can ensure that the communications infrastructure is open and upgraded as necessary over time.
- 1.5 Revenue.
- 1.6 Protection of other core utilities.

2. **Key Legal Challenges to Municipal Market Entry.**

- 2.1 Overview. Municipal ownership generally is strongly opposed by incumbent, private operators, for obvious reasons. Municipal entry is being challenged in several different ways:
 - 2.1.1 The decision to enter the market may be challenged politically at the local level – several communities have found it either necessary or expedient to submit the municipal ownership issue to referendum.
 - 2.1.2 The decision may be challenged in the courts.
 - 2.1.2.1 Generally federal statutory law does not prevent a municipality from operating a cable system or a telecommunications system.
 - 2.1.2.2 The most significant challenges are based upon (a) local contracts and (b) state law limits on municipal authority. There can be different limits on the authority to enter the *cable* business as compared to the authority to provide *telecommunications* services.
 - 2.1.3 Where there are no existing state law limits on municipal entry, municipal entry may be challenged in the state legislature.
- 2.2 Court challenges: cable television systems.
 - 2.2.1 Initially, cable operators claimed that municipal entry into the cable television business violated the first amendment (by making the cable business less profitable, and thereby depriving the operator of its ability to speak); constitutional due process (because the municipality would be both competitor and regulator); or equal protection (under a similar theory). These challenges have largely vanished, because the claims were resoundingly rejected in a series of cases, *see, e.g. Warner Cable Communications Inc. v. City of Niceville*, 911 F.2d 634 (11th Cir. 1990) *cert. den.* 501 U.S. 1222 (1991); *Paragould Cablevision, Inc. v. City of Paragould*, 930 F.2d 1310 (8th Cir.), *cert. den.* 502 U.S. 963 (1991).
 - 2.2.2 A different issue, and different results, may follow where the community enters into a contract that prevents it from entering the market. In *James Cable Partners, L.P. v. City of Jamestown*, 43 F.3d 277 (6th Cir. 1995), *rehearing and suggestion for rehearing en banc denied* (Feb. 13, 1995). The Sixth Circuit concluded that the Cable Act amendments did not apply retroactively, so that the exclusivity provision

could continue to be applied through the franchise term. For an opposing view, see *Cox Cable Communications Inc. v. U.S.*, 992 F.2d 1178 (11th Cir. 1993).

2.2.3 Another line of challenges is based on state (or local) limits on permissible municipal activities.

2.2.3.1 The “Dillon Rule”-- absence of a state authorization to enter the business.

2.2.3.2 State law *prohibitions* on municipal entry into a “private” business or and enterprise that does not serve a “public purpose.”

2.2.3.2.1 *Sheppard v. City of Orangeburg*, 442 S.E2d 601 (S.C. 1994). State law permitted municipalities to acquire and establish public utilities, but the South Carolina Supreme Court concluded that a cable system was not a public utility, *inter alia*, because a cable system does not provide an *essential service*.

2.2.3.2.2 For a contrasting result, see, *City of Issaquah v. Teleprompter*, 93 Wash.2d 567 (Wash. 1980).

2.2.3.3 There are several states where it is clear that municipalities can enter the cable business. The issue was litigated, and the municipal right to enter into the cable business was affirmed in North Carolina, for example.

2.3 Court challenges: telecommunications systems.

2.3.1 Local authority to construct telephone systems may be challenged on similar, but not identical grounds, to those identified above.

2.3.1.1 A telephone system will be classified as a public utility. However, there may be other statutory protections available to a telephone company that are not available to a cable system. *Iowa Telephone Association v. City of Hawarden*, 589 N.W.2d 245 (Iowa 1999) where Iowa law prohibited a municipality from competing with a private company in the provision of telephone service.

2.3.1.2 That ruling did not end the case, however, because Iowa law permitted Hawarden to operate a cable system, and under a separate federal law provision, a franchising authority such as the State of Iowa may not prohibit “the provision of a telecommunications service by a cable operator.” 47 U.S.C. §541(b)(3)(B). Because Hawarden was a cable operator, the Iowa Supreme Court reasoned that the City could not be prevented from providing telecommunications services.

2.3.1.3 The state of Texas absolutely prohibited municipal entry into the telecommunications business. The City of Abilene asked the FCC to declare that the state law violated Section 253. The FCC refused to do so, concluding that Section 253 did not compel a state to authorize its municipalities to provide telecommunications services.

2.4 Legislative initiatives.

2.4.1 Telephone and cable companies are turning to state legislatures in an effort to prevent municipalities from competing with them.

2.4.1.1 One initiative blocks municipal entry into the telecommunications business altogether. Tex. Utilities Code §54.201-202.

2.4.1.2 Another purports to “level the playing field” by subjecting municipally owned systems to the same requirements that apply to private operators. The Florida legislature adopted such a provision in 1997, F.S.A. §166.047. Among other things the section requires detailed, separate accounting for revenues, expenses, property and investment dollars; makes the municipal system subject “without exemption” to all local requirements applicable to telecommunications companies; and requires payment of ad valorem taxes on the facilities used to provide two-way telecommunications services. See also, Iowa S. J. 1195, effective July 1, 1999, governs cable services; S.J. 1313 governs the provision of local exchange services.

2.4.1.3 Ohio (1999 OH S.B. 67) at least has a “level playing field” statute pending. Texas is considering repealing the anti-municipal legislation cited above.

3. Federal Regulations Governing Cable Operators. The public-owned utility should assume that competitors will closely watch the public-owned utility's operations to ensure that it complies with all applicable federal, state and local regulations governing cable.

3.1 Cable Act Limitations on Programming Control.

A “franchising authority” may not exercise any editorial control over “the content of any cable service” on a municipally owned system (other than the content of government or educational access channels), unless control is exercised through an entity “separate from the franchising authority.”

3.2 Federal Communications Commission Rules Governing Cable Systems.

3.2.1 Copy of rules. Every cable operator serving a thousand or more subscribers to possess a current copy of Part 76 of the Commission's rules.

3.2.2 Technical Operation. Before the system is accepted, the system must meet federal technical standards, particularly the system's signal leakage.

3.2.3 Performance Tests.

a. Systems with a thousand or more subscribers must complete performance tests twice annually.

b. A more comprehensive performance test is required triennially.

c. Below a thousand subscribers an alternate measurement option.

d. Cable operators may not impair closed captioning information from television broadcast signals.

3.2.4 System Registration and Annual Reports.

3.2.5 CARS License.

3.2.6 Equal Employment Opportunity. Most, but not all, cable system operators and MSOs are required to establish and maintain EEO plans. Those systems with more

than five fulltime employees are required to file their EEO statistics and the operators' employment practices.

- 3.2.7 Lockboxes; Obscenity. the operator must provide a subscriber on request with a device to restrict home viewing of offensive programs.
- 3.2.8 Subscriber Privacy.
- 3.2.9 Customer Service. Resolution of consumer complaints and the retention of associated documentation are dealt with in 47 C.F.R. § 76.607.
- 3.2.10 Home Wiring. The Commission's rules prohibits an operator from removing wiring installed on a premises unless the customer is given an opportunity to purchase the wiring at replacement cost.
- 3.2.11 Equipment Compatibility. 47 C.F.R. § 76.630 establishes compatibility standards between television receivers and VCRs, and cable system converters and encryption methods, which impose significant requirements on cable system design and operation.
- 3.2.12 Local Origination and PEG Access Channels. Operation of local origination channels -- but not access channels -- is theoretically governed by a number of rules and statutory provisions, e.g., fairness and personal attacks, political and controversial issues, lotteries, sponsorship, and children's programming.
- 3.2.13 Leased Access. 47 U.S.C. § 532 requires cable operators to set aside channels for leased access. Provisions regarding rates and other terms and conditions appear at 47 C.F.R. §§ 76.970-977.
- 3.2.14 Programming on Access Channels. Cable operators may limit programming on leased access channels that contains obscenity, indecency, or nudity.
- 3.2.15 Signal Carriage
 - (1) Must-Carry.
 - (2) Syndication and Network Exclusivity. Systems serving fewer than one thousand subscribers are exempt.
- 3.2.16 Rate Regulation. A municipal cable system is immune from rate regulation if it is the only cable system within the franchising authority's jurisdiction. The Cable Act requires notice of the availability of the basic service tier, prohibit a buy through rate structure for PAY-TV. ~~It requires that rate structures be uniform throughout the geographic area served by the system unless the video programming services offered by the operator in that area are subject to effective competition.~~ And it prohibits negative option billing. An operator must give subscribers at least 30 days' notice of any increase in basic rates.
- 3.2.17 Local Public File. The operator of a system with a thousand or more subscribers is required to maintain files available for public inspection.

Such files are required to contain:

- o EEO records, if applicable
- o Sponsorship identifications
- o Technical test data
- o Signal leakage records
- o Children's Programming
- o Political cablecasts

In addition, all operators are required to maintain at their local offices current listings of all channels being delivered to subscribers, to retain

semi-annual performance test data for at least five years, and to retain subscriber complaints about signal quality for one year.

3.2.18. Notifications. Periodic notifications to subscribers are required with respect to:

- Signal quality complaints
- Channel lockouts
- Subscriber privacy

3.2. Certain Other Federal Requirements.

3.2.1. Antenna Towers. Erection, marking, and lighting of antenna towers is subject to airspace clearance from the Federal Aviation Administration (FAA) under 14 C.F.R., Part 77 (Objects Affecting Navigable Airspace). The Federal Communications Commission has authority under Section 303(q) of the Communications Act to require the painting and illumination of licensed radio towers, 47 C.F.R., Part 17 (Construction, Marking, and Lighting of Antenna Structures). Form 7460-1 (Notice of Proposed Construction or Alteration) is required to be submitted to one of twelve FAA regional offices for towers over 200 feet or towers near airports, with certain exemptions. Form 714 (Aeronautical Supplement to Application for Radio Authorization) is required to accompany radio applications filed with the FCC, where the application from itself does not contain an aeronautical subsection.

3.2.2. Copyright Licenses. Most cable programs require performing rights licenses¹. Programming supplied by syndicators is usually “licensed at the source.” In addition, the Copyright Act currently provides cable operators with the option of obtaining a compulsory license for broadcast signals. Failure to file a timely form after operation commences can create serious liability. Deletion of broadcast commercials is restricted.

4. Other Impacts of Municipal Entry.

4.1 Effect on existing cable franchises. The incumbent cable operator will seek strong language that subjects the municipal system to the same requirements as the incumbent’s franchise – whether appropriate or not.

4.1.1 In some states, for example, a franchise is a grant to a private party, and is not available to a governmental entity

4.1.2 Other provisions – indemnity provisions, and liquidated damages, for example – make little sense, because the municipality cannot indemnify or damage itself.

4.1.3 Some typical franchise provisions need to be modified, once the municipal system is competing throughout the community. For example, regulations that assume a monopoly should be removed to allow competition to set the standards.

4.2 Impact on regulation of telecommunications providers. Section 253 of the Telecommunications Act of 1996 preempts certain state and local actions that “prohibit

¹ Local governments and their employees are liable for copyright infringement under Public Law 101-553 (1990), 17 U.S.C. § 511.

or have the effect of prohibiting the ability of an entity to provide telecommunications services.” A municipal telecommunications system may face Section 253 challenges to the extent that the municipal system and the private system are subject to different compensation (and possibly) right-of-way use rules.

5. Summary

A community that enters into the cable business or telecommunications business will face a significant number of legal hurdles. It is important to conduct a detailed legal analysis to anticipate – and obviate – potential obstacles to municipal entry.

Attachments: analysis of municipal systems.

Wadsworth, Ohio Activated: January, 1997; 70% built Subscribers: 2,460 Homes Passed: 4,500		
System Design	Services Offered	Competition notes
Hybrid fiber/coax 750 MHz/500 homes per node 500 MHz for cable services Two-way	Basic: \$5.50, 25 channels (including 3 PEG) Expanded: \$24.14, 62 channels Internet: expected in six months Telephone: not yet	<i>Program Exclusivity:</i> operator asserted with respect to MSNBC, Classic Sports <i>Service contracts:</i> Private op seeking MDU exclusivity <i>FOIA requests:</i> Private op seeking financial records/feasibility studies
Competition: Time Warner No. of subscribers before overbuild: 5,200 No. of subscribers after overbuild: 3,988		
System Design	Services Before	Services After
Upgraded system to 750 MHz, two-way	Expanded Service: \$56.75, 61 channels	Expanded Service: \$24.14, 61 channels High speed Internet Service: Yes, \$39.95 standalone, \$29.95 bundled

Tacoma, Washington Activated: July, 1998; 75% built, 50% active Subscribers: 6,400 Homes Passed: Unknown		
System Design	Services Offered	Competition notes
Hybrid fiber/coax 750 MHz/1000-1200 homes per node 550 MHz for cable services Two-way	Basic: \$9.95, 27 channels + 31 digital music channels and a variety of satellite channels Expanded: \$23.50, basic setup + 45 additional channels Internet: still in the testing phase Telephone: not yet	<i>Program Exclusivity:</i> operator asserted with respect to a regional news show called Northwest Cable News <i>Service contracts:</i> Private op seeking MDU exclusivity <i>FOIA requests:</i> Private op seeking any available information
Competition: TCI No. of subscribers before overbuild: 55,000 No. of subscribers after overbuild: Unknown		
System Design	Services Before	Services After
Upgrading to hybrid fiber/coax, 750 MHz, two-way	Basic: \$9.97, 14 channels Expanded: \$23.12, 30 channels Premium: \$55.11, 36 channels	Basic: \$11.87, 34 channels Expanded: \$23.94, 72 channels Digital channels are offered a la carte High speed Internet Service: operator has launched their @Home service

Harlan, Iowa Activated: October, 1996; Complete Subscribers: 1,174 Homes Passed: 2,200		
System Design	Services Offered	Competition notes
Hybrid fiber/coax 750 MHz/400 homes per node 550 MHz for cable services Two-way	Basic: \$9.67, 11 channels Expanded: \$20.94, 54 channels Internet: 1.54 MB or 10 MB Telephone: not yet	<i>Program Exclusivity:</i> operator asserted with respect to FOX <i>Service contracts:</i> Private op seeking MDU exclusivity <i>FOIA requests:</i> None

Competition: TCI No. of subscribers before overbuild: 1,700 No. of subscribers after overbuild: Unknown		
System Design	Services Before	Services After
330 MHz System has not been upgraded to hybrid fiber/coax	Basic: \$9.18, 13 channels Expanded: \$20.82, 46 channels	Regular Expanded Basic: \$16.95, 33 channels Special Deal: \$22.75, 75 digital channels, free installation. If you have one TV hooked up to the 75 digital channel package, you may hook up any number of TV's to the digital package for \$8.50/month or you can hook up any number of TV's to basic cable (30 channels + HBO & Starz) for no extra monthly charge.

Cedar Falls, Iowa Activated: February-March, 1996; Complete Subscribers: 6,410 Homes Passed: 11,814			
System Design	Services Offered	Competition notes	
Hybrid fiber/coax 750 MHz/500 homes per node 500 MHz for cable services Two-way	Basic: \$8.00, 18 channels Expanded: \$24.00, 63 channels Internet: 4 MB Telephone: not yet	<i>Program Exclusivity:</i> operator asserted with respect to FX channel <i>Service contracts:</i> Private op seeking MDU exclusivity <i>FOIA requests:</i> None	
Competition: TCI No. of subscribers before overbuild: 7,000 No. of subscribers after overbuild: TCI keeps numbers confidential			
System Design	Services Before	Services After	
Hybrid fiber/coax 750 MHz/500 homes per node	Basic: \$7.09 Expanded: \$13.89 (31 channel offering)	Basic: \$8.50, 17 channels Expanded: \$23.29, 65 channels	

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American Public Power Association
(APPA) Telecommunication Workshop

Vineland City MAN (Metropolitan Area Network)

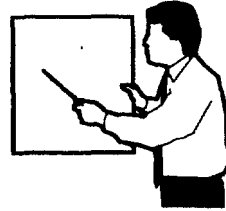
*Topic: Public Private Partnerships for
Provision of Telecommunication Services,
What You Must Know*

Monday, October 25, 1999
Charlotte, North Carolina

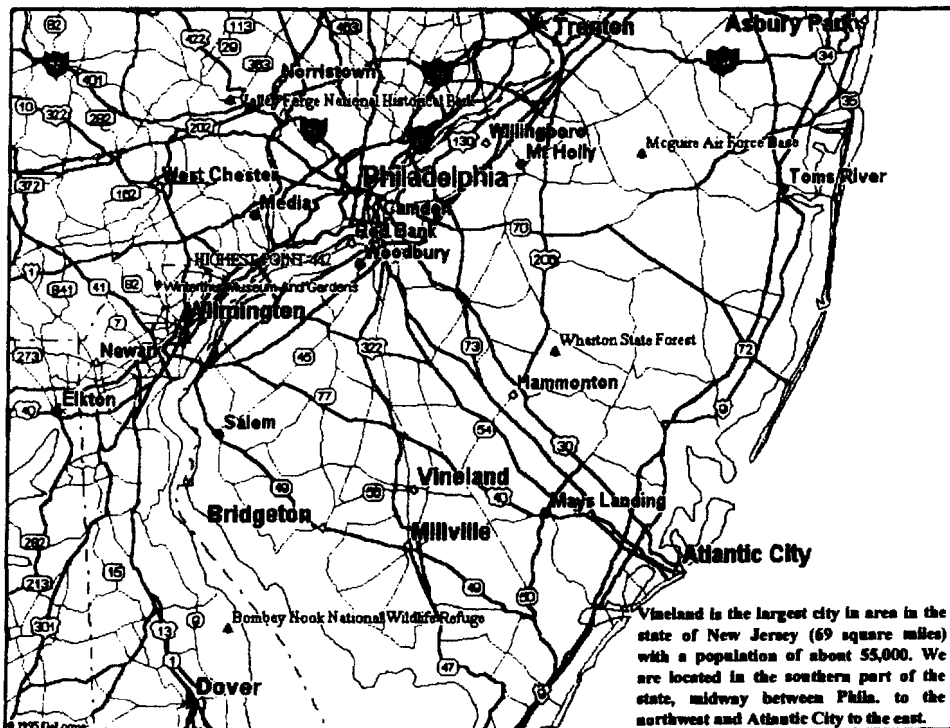
Acknowledgments/References

- 3Com Networks 3 Presentation, San Francisco, CA, December 7-10, 1998, Mary Cipriotti Sales & John Beaton 3Com Network Engineer and S. Dantine, Vineland Board of Education
- Lucent Presentation, Vineland, NJ, May 1999, Mark LaFranco-Lucent Sales & John Esteve-Lucent Telephony Engineer
- Bell Atlantic Video Portal Presentation, Intelligent Applications Center (IAC), South Plainfield, NJ, September 28, 1999, Dean Gonteski, Bell Atlantic Network Engineer

Presenters



- Robert Napier
 - Supervising Engineer,
VMEU (Vineland Municipal Electric Utility)
856.794.4300.4304 mapier@vinelandcity.org
- Stephen L. Dantine
 - Supervisor of Technology & Telecom.,
VBOE (Vineland Board of Education)
856.794.6700.2350 sdantine@vineland.org
dantine@snip.net



Vineland is the largest city in area in the state of New Jersey (69 square miles) with a population of about 55,000. We are located in the southern part of the state, midway between Phila. to the northwest and Atlantic City to the east.

The Vineland Community

Vineland, New Jersey is located in the center of southern New Jersey between Philadelphia and Atlantic City, 35 miles from each and just 110 miles from New York City or Baltimore. Vineland is New Jersey's largest city covering 69.5 square miles, larger in area than Newark, Camden and Trenton combined. While large in physical size, the population of more than 55,000 is a culturally and economically diverse group working closely together for the good of the community. Vineland business includes Agricultural, Apparel, Electronics, Food Processing, Glass, Plastics, Pharmaceuticals, Scientific & Medical Technologies, Shipping and Warehousing. Vineland is also home to one of the largest scientific glassware producers in the country and the largest cooperative produce auction east of the Mississippi. Vineland is a city where farming, business and industry unite with a diverse population to form a close cooperative community.

The Challenge



While the community seems to rally around its diversity, the diversity includes real economic and employment hardships. Vineland is recognized as an economically challenged area. Vineland is one of the few New Jersey communities to qualify as an Urban Enterprise Zone. Companies within the zone are eligible for a number of state sponsored financial incentives. Vineland is also one of four municipalities included in an Empowerment Zone, recently approved by the US Department of Housing and Urban Development for Cumberland County New Jersey. There are a number of Federal and State programs to be directed in the Empowerment Zone for housing, economic development, public improvements and social services.

Cooperation: Key To Success

Through a cooperative effort between the City of Vineland and the Vineland Board of Education, local funds have been used to establish a Metropolitan Area Network (MAN) which ties facilities with high speed data transfer capabilities, E-mail communications and offers Internet access to all parties. The MAN includes public schools, Cumberland County College, City Hall, the Police and Fire Departments, the Vineland Public Library, local utilities including electric, water and sewer, and other City buildings and departments. The MAN has improved communications between all parties, which provides for enhanced coordination and support of local services. The City and the Board of Education through this sharing of technological resources have realized efficiencies that without this partnership would have only been possible at a much greater cost to the community.

Fiber Installation Plan



The MAN implementation was the culmination of the City of Vineland Fiber Optic project. The Vineland Municipal Electric Utility provided engineering, prepared specification, performed construction management and has completed the installation of 28 miles of 72 fiber all-dielectric-self-supporting single mode fiber optic cable. The fiber optic cable formed two loops around the City from which, drops were run to connect 12 city buildings, 21 school buildings, and the local community college. The system was designed with expansion flexibility to provide high speed fiber optic connections to others in the community.

Vineland - Goals and Objectives

- The Vineland MAN system's goal was to develop an infrastructure of connectivity to form a complete information-based community.
- The network, spanning 69 square miles, will deliver voice, video and data services.
- Including training and curriculum-based applications.
 - to over 500 city employees
 - more than 11,000 students and faculty



City of Vineland (MAN)

- Vineland was one of the first cities to develop an inter-agency agreement between schools and the local government.
- City of Vineland, New Jersey, and the Vineland Public School District is deploying New Jersey's first metropolitan area network (MAN).
- Delivering Internet, Intranet, video, and voice resources to city employees, public school students and faculty.



Vineland - Public Schools..

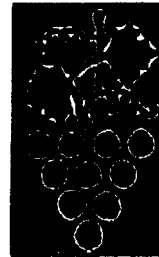
Facts and Figures



- Number of Schools:
 - 18 including 4 kindergarten centers, 1 pre-first, 7 elementary schools, 4 middle schools and 2 high schools. There is also an adult education center.
- Alignment is as follows: kindergarten;
 - grades 1-4 in elementary; grades 5-8 in middle school; grades 9-10 in Vineland High School North and grades 11-12 in Vineland High School South.
- Students: 10,127
- Employees: 1,567
- Budget: For 1998-1999, the total is \$110 million

Vineland City...

Facts and Figures



- Number of Buildings and organizations:
 - 18 including Vineland City Hall, Vineland Police Department, Vineland Public Library, Vineland Municipal Court, Vineland Recreation Department, Vineland Fire Departments, Vineland Utilities Building, Vineland Water Utility, Vineland Road Department, Vineland Emergency Management, Landis Sewage Authority, Vineland Municipal Electric Utility Sites
- Employees: 748
- Budget: For 1998-1999, the total is \$35 million

Cabling Status



- Wire all School Sites For Video, Data, Voice
- Wire all City Sites for Data and Voice
- Install Fiber Optics Cable
 - Multimode
- Install Single Mode Aerial
 - 72 Strands City-Wide
- Labor Pool Requirements

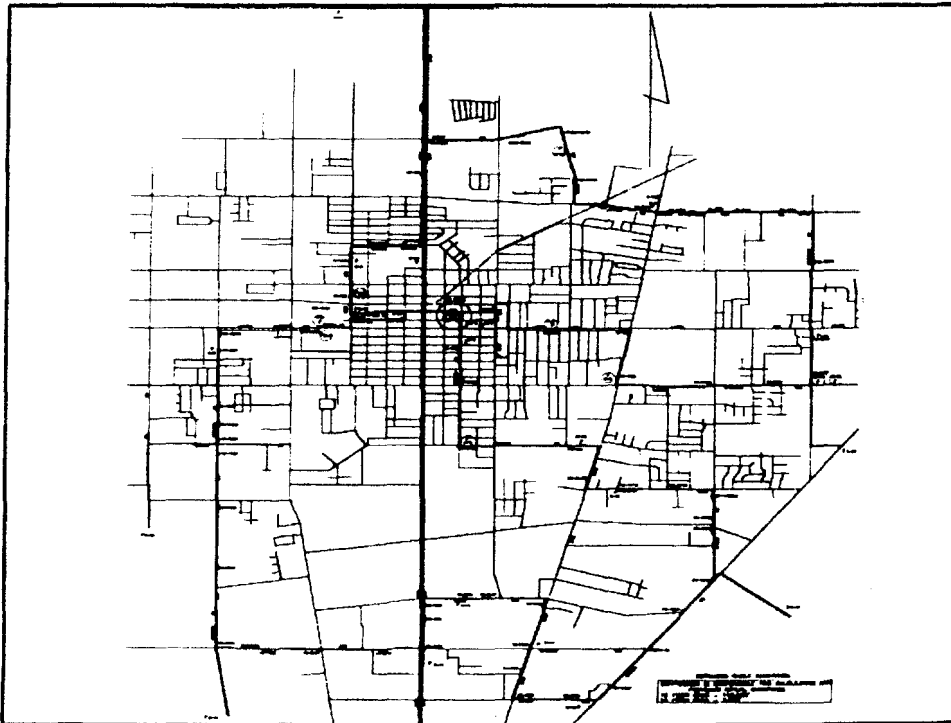
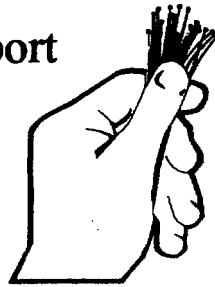
LAN Networking Crew

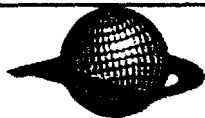
In order to promote a cost effective solution to the large and expensive task of local area networking the entire school district, the concept of employing student(15-18 year's old) workers for cable installation and termination was established. This ongoing program, which relies on the School-to-Work concept, not only provides the LAN students with income, but also excellent experience, education, and training for future(potential) high wage employment in the field of electronic communication and transmission. The overall cost savings to the district is also significant.



MAN Fiber Optic Layout & Specifications

- City-Wide Layout
- ADSS Self Supporting Cable
- Dulmison Fiber Optic Dead End
- Dulmison Fiber Optic Support Clamp





Chromatic
Technologies, Inc.

Voice & Data

REQUEST INFORMATION

WHAT'S NEW

SALES OFFICES

PRODUCTS

All Dielectric Self Support Cable (ADSS SS750 and LS750)



All dielectric self supporting cables are designed to be installed with span lengths up to 1,300 feet (396 meters) without a messenger, depending upon loading conditions. The all dielectric design does not conduct electricity and ideal in areas of heavy electrical storm activity. A special anti-tracking outer jacket allow these cables to be installed in a field voltage of 25,000 volts. Breaking strengths up to 12,000 pounds (54,545 Newtons) are available. Qualified supporting hardware can be obtained from Duhmison or Perform Line Products. Cables are available up to 216 fibers and operate from 40C to +70C.

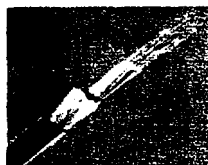
All-Dielectric Aerial Self-Supporting Cables

The Chromaflex™ self-supporting cables are gel-filled tube, all-dielectric cables for outdoor aerial, duct and buried applications. These cables are available with up to 24 single-mode and/or multimode fibers in a heavy-duty double jacketed construction.

This gel-filled tube construction offers excellent moisture protection. The cable construction also includes a bonded core for longitudinal water blocking and additional moisture protection. The jacketing system utilizes a UV and sunlight resistant high density polyethylene material for maximum protection against the elements above ground or underground.

The all-dielectric, self-supporting cables feature a cylindrical shape to minimize wind vibration and galloping. This concentric construction minimizes diameter and thus the effects of wind and ice loading. The shape also facilitates easy pulling on ducts. Fiber counts less than 72 are provided with the same diameter providing compatibility and easy selection of industry standard hardware.

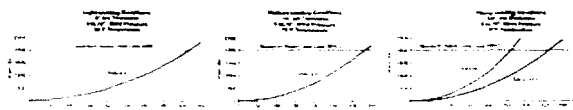
The all-dielectric construction gives these cables inherent resistance to lightning, and eliminates the need for grounding. These cables may be installed in electrical fields up to 12KV/M. They meet the requirements of the proposed IEEE P1222, "All-Dielectric, Self-Supporting Fiber Optic Cable for Use on Overhead Utility Lines."



- Outer Jacket
- Strength Member
- Inner Jacket
- Buffer
- UV Inhibitor
- Plasticizer
- Fiber
- Buffer Tube
- Central Strength Member
- Reinforcement



Storage Temperature: -40°C to +70°C
Operating Temperature: -40°C to +70°C
Installation Temperature: -10°C to +50°C



Draka USA
Chromatic Technologies, Inc.

SS750L SERIES Specialty Fiber Optic Cables